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ABSTRACT

This summary report, one of a series of documents on the evaluation of the University of Western Ontario Preschool Project, reviews studies (conducted as part of the project) of preschool children to determine why disadvantaged children fail in school and to discover if compensatory education activates and maintains the children's cognitive functioning. These studies of sixty 3-year-olds during one year in preschool, and 50 of these same children during 2 consecutive years in preschool, yielded findings indicating that children from economically disadvantaged homes fail in school more often than their more advantaged counterparts because they do not receive enough cognitive stimulation during a critical phase in their development and because their home environments are not conducive to the development of effective cognitive and learning styles or problem solving strategies. Results also showed that (1) preschool education, begun with such children when they are 3 years old, can have significant immediate compensatory effects, but that (2) such effects are greater when the children are offered a well-organized program focusing on the development of conceptual abilities and representational skills and structured to meet each child's individual needs. (Author/SE)

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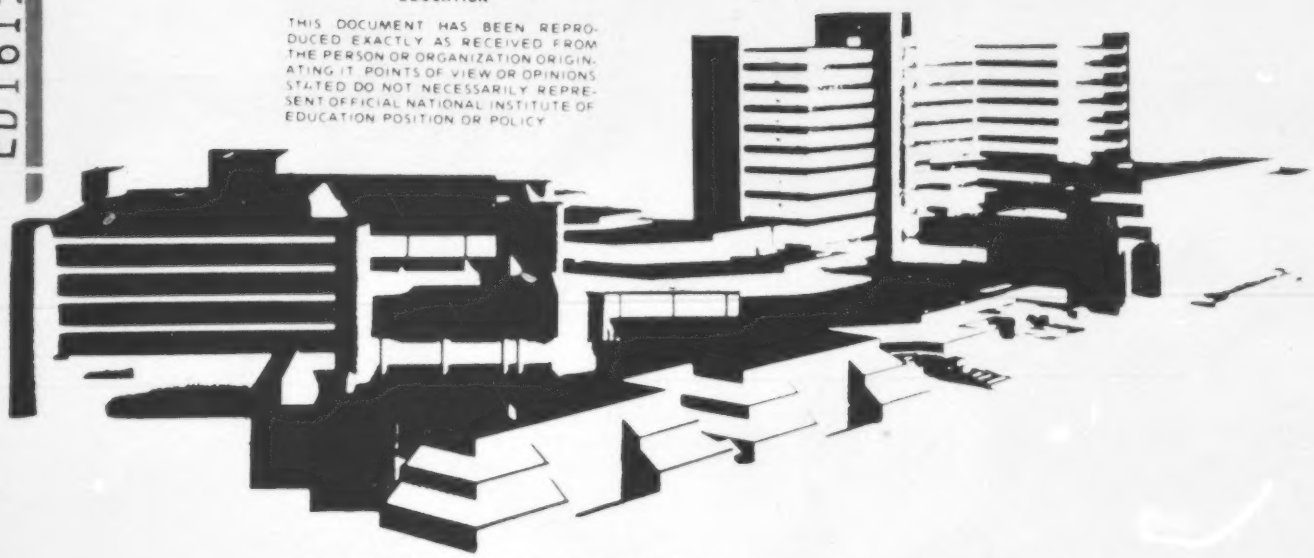

COMPENSATORY EDUCATION FOR PRESCHOOLERS

A Non-technical report on the U. W. O. Preschool Project

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DEPARTMENT OF PSYCHOLOGY

THE UNIVERSITY OF WESTERN ONTARIO LONDON, CANADA

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Preface

The present report was prepared in response to a request for a non-technical summary of the work accomplished to date. A list of the technical reports on which this summary is based, the MA theses which have been done as part of the project and papers which describe specific aspects of the work are listed in the appendix.

COMPENSATORY EDUCATION FOR PRESCHOOLERS

The UWO Preschool Project

An Historical Note

It all began in the middle of World War II. On a cold and misty May morning, a convoy set out from Halifax for the United Kingdom carrying on one of its ships six Canadians, whose destination was an industrial city under bombardment and whose mission was the training of teachers for Wartime Day Nurseries. The six were William E. Blatz, then Director of the Institute of Child Study at the University of Toronto, three of his senior colleagues and two of his former graduate students. The writer was one of the students.

On Dominion Day, July 1,1942, in a partially "bombed out" school, in the core area of Birmingham, Garrison Lane Nursing Training School, with its demonstration Wartime Day Nursery, opened its doors. The writer was thus catapulted into an experiment in compensatory education, which lasted for something over two years and left her with an enduring impression of the remarkable benefits which could be derived, from an early education program, by children from economically disadvantaged homes.

As early as the late 30's there was some evidence which indicated that the nursery school could have an important impact on the intellectual development of the underprivileged child. The initial findings of Beth Wellman, (Watson 1959, p502-504; Wellman, 1944) had been reported, and her claim that IQ was environmentally, rather than genetically determined, was being hotly debated. Since working class families

were served by the Garrison Lane Day Nursery, it was decided that the opportunity to measure the effects of the Canadian Institute of Child Study early education program (which was replicated at Garrison Lane) on the intellectual performance of the children should be seized. Accordingly, the youngsters were given the Stanford Binet Intelligence Scale, every six months (by the writer). The results obtained were similar to those reported by Wellman. The IQs of most of the children tested increased, in some cases as much as 20 IQ points (Blatz, 1944, p254). The burning question was, however, "why?" Unlike Wellman, the Garrison Lane group assumed that the genetic potential had always been there and proposed that what the preschool experience did was create the motivation to learn and encourage the development of habits (exploration, persistence, resourcefulness) which insured greater achievement. Hence, although the causes of the changes in the children were debatable, it seemed likely that something in their preschool environment was making up for something which was lacking in their non-preschool environment, and that this "something" was needed to support their development toward the realization of their full potential.

With this historical note in mind it is not difficult to understand why the writer persisted over many years in the attempt to have established at this university a laboratory preschool, or why, when it was opened the first project to be initiated was one on compensatory education.

Launching the Project

The year 1973 (when this work started) was both a "bad" time and

a "good" time to launch a project in compensatory preschool education for three- to-five-year olds. It was a "bad" time because the report on the Westinghouse-Ohio National Impact Study of Head Start was out (White, S. H., 1970) and everyone was talking about its "disappointing" results. Jensen (1969) had published his controversial paper in the Harvard Educational Review, in which he re-emphasized the importance of the genetic component in intelligence, and influential people like B. L. White (1973) and others were insisting that intervention after the age of three years was too late. It was, however, a "good" time to start because a large body of helpful information had been accumulated. Much had been written about the abilities and needs of impoverished children. Several different types of early education programs for such children had been tried and assessed (Evans, 1971). Furthermore, it was not difficult to account for the "disappointing" results of Head Start. Many Head Start projects had been launched with haste and with little or no expertize and it was argued that the needs of the children had not been accurately identified (Baratz & Baratz, 1970) and that the programs planned for them had been inappropriate (Ginsberg, 1972). At least one investigator was reporting long term "sleeper" effects, starting at the grade 5 level, for his cognitively oriented program (Weikart, 1971), effects of the sort that several other investigators are now (at the time of writing) also reporting (Palmer, 1976). Hence when this project started the group at Western was challenged rather than dismayed.

The needs of economically disadvantaged children

If compensatory education means, by definition, that such education compensates, or "makes up" for, something that is lacking in a child's environment, then the first step is to identify the nature of that lack. What do children from impoverished homes need that they are not being given?

The initial attempt to answer this question was made by studying literature of two kinds: literature which described the characteristics of children from economically disadvantaged homes and literature dealing with the characteristics of the parents of such children. It has been known for a long time and is well documented that children from the lower socio-economic groups do more poorly on intelligence tests and fail more frequently in school than do their middle class counterparts. To account for such findings, those who have rejected the genetic hypothesis have offered many alternative explanations. Some have shown that such youngsters are less competent socially than are middle class children, that they distrust authority figures, feel hostile toward teachers and resist middle class values including formal education. Others have argued that their problem is motivational and that even the natural curiosity of the disadvantaged child is likely to be destroyed very early. It has been said that they lose their desire to learn and achieve and develop a feeling of hopelessness and incompetence, that leads them to work only for tangible immediate rewards rather than intangible and more remote satisfactions. More convincing than the above was, however, an accumulation of evidence which suggested

that the basic problem of lower class children lay in their inability to process information symbolically, or to think. It was found that their representational abilities were poor and that they had difficulty applying past experience to new situations. Jensen reported that although their concrete intelligence was adequate their abstract and conceptual intelligence was not.

If the problem was truly one of not being able to think, could this be accounted for by a lack of appropriate stimulation in their homes? Knowledge about the psychological conditions in the homes of the poor is limited. There is some evidence, but more speculation, and it is recognized that they vary widely. There is, however, general consensus that they are likely to differ from those which prevail in more economically secure families in a number of ways such as the following. The parents in such homes are more frequently worried, tired, frustrated and discouraged with little hope. They are emotionally disturbed for realistic reasons. Their own intellectual resources are poorly developed and their language skills and ideational abilities are limited. As a result they are likely to talk little with their children, direct them abruptly and arbitrarily, without explanation, using a resticted rather than an elaborated code, and to play games with them rarely, especially ideational or problem solving games which stimulate thought. They are likely to read little themselves and less to their children, to punish inquiry because it threatens them, and to discourage imaginative play or fantasy in their children. In summary, they provide less "food" for thought and less intellectual challenge

and stimulation than do more intellectually competent and secure parents. To the extent that this is so, it is not surprising that children from such families have difficulty thinking things through and applying past experience to a new situation, the type of ability that intelligence tests most frequently attempt to measure.

Program Development

Basic Assumptions

The basic assumption on which the UWO compensatory program was based grew out of the above considerations, as well as observations and assessments of the children during the first project year. It was assumed that children aged three to five years are at a critical stage in their cognitive development, during which they are making the transition from the manipulation of the concrete to the abstract, and that, if adequate support for the development of efficient symbolic functioning is not provided during these years, it will be extremely difficult to activate it at a later stage. One of the most striking indications, that the acquisition of representational skills is an important developmental task for this age group, is the extent to which they spontaneously engage in imaginative, or make-believe, play. In essence, such play reflects their efforts to exercise their new capacities for thought or for the manipulation of objects, relations and events, which are not immediately present, in a symbolic or representational form.

The working hypothesis used in designing the program was, therefore, that children from families with low incomes receive insufficient

cognitive stimulation at home and that a compensatory program for them should focus on the activation of cognitive functioning in all its varied forms. This had important implications for the whole approach to practice as outlined below.

First, it was considered more important to have the children try to "figure things out" than to give them the right answer. Hence direct, didactic instruction was reduced to a minimum. Instead, inquiry (what, how, why) was the teaching mode and experimenting (making predictions and testing them out) the instructional method. Second, experiencing the joy in discovery and the satisfaction in mastery was considered more important than how much was achieved. Thus the program was an active discovery, play-oriented one, in which self-directed exploratory activities were induced through the manipulation of attention-inducing and attention-maintaining variables such as novelty, variety, discrepancy and ambiguity. Most of the available time was devoted to child-selected activities, generated by the child's own interests. To enhance the children's sense of accomplishment and to maintain their interests, improvements in performance were commended, but not praised or rewarded in tangible ways. That is, care was taken to attribute successes to the children's own efforts and to recognize them as achievements of the children's goals rather than those of the teachers. Third, helping the children develop inner controls, or helping them discover that they were able to determine their own destinies by using reason and good judgment was considered more important than shaping their behavior by external manipulation. It is possible to select

behavior, which will achieve desired outcomes, only if the outcomes of one's options are predictable. Care was taken, therefore, to develop an objective, non-authoritarian, instructional, reasoned approach to the management of behavior and to provide a consistent set of requirements and consequences which were logical and easily understood by the children. The children were encouraged to think ahead, to make predictions about outcomes, and decisions about their behavioral options in terms of those predictions. Thus adapting to the requirements of the school situation was also turned into an exercise in cognitive functioning.

The socialization of the children was considered important, not only for its own sake, but because of the cognitive challenges which participation in group activities provide. Playing with others presents many problems, the resolution of which depends on the ability to communicate, or to send and receive a language code, to interpret and understand the thoughts and feelings of others and to take such variables into account in resolving disputes or achieving social goals. Playmates are intrinsically fascinating. They are unpredictable, their behavior is varied, surprising and novel and their points-of-view are often discrepant from one's own. In short they are interesting and puzzling and, as such, create optimum conditions for stimulating problem-solving thought. Among the special methods used to exploit the possibilities in social play for cognitive development was the stimulation, in a systematic way, of theme-oriented socio-dramatic play. Some of the play was reality oriented (acting out episodes in play centres such as

a medical centre which was well-equipped with props) and some fantasy-oriented (acting out stories with a make-believe theme using no props or "pretend" props and sometimes puppets). Teacher guidance in small groups was used to help the children develop themes and act them out and the development of appropriate centres in the playroom set the stage for the transfer of this type of representational behavior into the children's self-initiated play activities.

Fifth, making plans and being resourceful and creative in using materials for constructive purposes to achieve self-selected goals was considered more important than simply following a model or instructions. The teachers encouraged planfulness and set the stage for the child to independently collect the materials needed to achieve his/her goals. Divergent thinking and creative expression were also encouraged through music, dance, painting, verbal expression and other more traditional preschool activities.

Finally a systematic attempt was made to expose the children to the more intimate type of cognitive stimulation which most middle class parents offer their children in one-to-one, face-to-face situations or in small family groups.To accomplish this, each teacher assumed responsibility for working with specific children (usually seven) over specified time blocks (usually 6 weeks) during which the attainment of specific cognitive goals was stressed. Their task was to assess the developmental level attained by each of the children and then plan and offer them experiences, either individually or in small groups which were appropriate. The experiences were designed to activate the

cognitive processes which Piaget has suggested underlie the development of logical thought. Doing experiments, following recipes in food preparation, playing games of various sorts including gymnastics and the like were the kinds of activities used to help the child grasp simple concepts of number, seriation, spatial relations and classification.

Structure and organization

A cognitively oriented program based on the assumptions just described is not without structure. Since the children function independently, the staff and all aspects of the program must be highly organized. The physical environment must be designed to induce the type of behavior desired. The use of time, the selection and introduction of materials, and the scheduling of the various types of educational experiences required to implement the curriculum must be carefully pre-planned on a daily, monthly and sessional basis. Since the approach to the child is an individual one a practical system for monitoring the development of each child must be devised so that when teacher interventions occur they are appropriate.

The amount of structure in the UWO program was increased after the first and again after the second project year.

The first year was the start-up year and was used to obtain "baseline" data on the competencies of the low-, as compared with the high-income subjects. A relatively informal program was offered, the focus of which was on achieving personal and social goals, the development of independence, self-management skills, representational abilities

and effective problem solving styles. Although the teachers were studying the literature on cognitive development, no special small group activities aimed at stimulating the development of specific cognitive abilities were planned or offered, and during free-play the teacher's role was more responsive than active. A highly enriched and novel environment containing much equipment was provided and there was an emphasis on dramatic play. Each day was structured only to the extent that the first 90 minutes was spent in indoor play and the last 45 minutes in outdoor play with the indoor play period terminated by a traditional, teacher-directed circle time.

Assessments of the children during the first year yielded findings which were consistent with the view that the problems of the low-income children lay primarily in the cognitive, rather than the social or motivational areas. Although the conceptual abilities of the low-income children improved significantly during this year, the differences between them and the high-income children increased rather than decreased over time. Also, it was found that more of the low- than high-income subjects were impulsive and distractible and that their year in preschool had done little to reduce these tendencies. It was decided therefore that the immediate goals for the second year would be to induce more task-oriented behavior and to concentrate in a more systematic way on the development of cognitive abilities.

In the second and subsequent years, impulsivity and distractability were successfully reduced and more task oriented behavior was induced by using several strategies. These included: (a) a reduction in the

complexity, variety, and novelty of the play environment during the first five weeks of the fall term (fewer units of equipment, fewer centres, one less dramatic play centre) (b) redesign of pathways to smooth out traffic flow (elimination of sources of conflict) (c) more careful management of the timing of the arrivals of the children in the playroom, at the start of each play period, so that they came in at a leisurely pace individually, or in groups of two or three, (making more time available for planning and settling without distraction) (d) arranging the centres so that those which the children encountered first were ones which are known to induce less social and more private constructive activities (e.g. the art, educational toy, library and science centres). It was necessary for the child to pass these centres and cross to the opposite side of the room to reach the areas designed to stimulate more active and more social play (e.g. dramatic play and large block centres) and (e) introducing novel dramatic play centres slowly, rather than suddenly, and having the children participate in their development.

In the second year the teachers began to plan and try out special projects aimed at stimulating specific aspects of cognitive development, especially number acquisition. They also worked on the task of developing assessment guides which could be used for determining the children's developmental levels and the effectiveness of teacher interventions. Thus, it was not until the third year that the program was fully structured along its present lines.

In the third and fourth years planning of how the curriculum would

be implemented throughout the whole year was made in advance and the amount of teacher-guided activity was increased. Each day all of the children were given the opportunity (which most regularly accepted) to participate in two kinds of teacher-guided small group activities. One of these was a language stimulation discussion period, which included a snack, and the other was a session which was systematically planned to stimulate a wide range of conceptual learning and the development of various types of representational skills. Approximately six weeks after the children were enrolled in the preschool they began to be involved, also, in the small group or individual teacher-guided activities which were planned to meet their special intellectual needs. This kind of involvement did not, however, occur everyday. During the fall term it occurred, for any given child, during only one two-week period. However, after Christmas, throughout the winter and spring terms, it occurred on most days during two weeks of every month.

In summary, during all four years the basic philosophy of the program, the teaching staff, the general scheduling of time (indoor play, circle time, outdoor play) and the major features of the physical environment were unchanged. What was changed over time was the extent to which pre-planning of the environment, the equipment to be offered, the curriculum content, the daily, monthly and sessional use of time (especially during the indoor play periods) determined the quality of the behavior of the children and the activities in which they chose to engage. The role of the teacher became more active during free play and the children spent more time in pre-planned teacher-guided activities.

They also engaged spontaneously in more constructive play which was often solitary rather than social. Consequently there was a reduction in the number of social conflicts encountered and a reduction in the amount of time spent in group play,including spontaneous socio-dramatic play. Also, over time the increased preoccupation of the teachers with the development of conceptual skills influenced the focus of their teaching in informal, as well as pre-planned activities.

Program Evaluation

The benefits which children derive from a cognitively oriented program of the sort just described are expected to be long-term rather than immediate. Thus, to evaluate such a program the children in it should be studied over a long period of time. If the program is successful in activating the processes underlying the development of logical thought and, if it induces more effective cognitive and learning styles, then the cognitive development of the children exposed to it should develop more satisfactorily and the amount that they learn should be greater than that of comparable children who have not been exposed to such a program. A follow-up study of the low-income "graduates" of the program, who are in the primary grades, is in progress. So far only eight have completed first grade and twelve kindergarten, but these children are all doing well. They are performing cognitively at a higher level and doing better academic work than are the control subjects with whom they are being compared. It is, however, too early to draw any conclusions about the long-range benefits of the program.

The following will, therefore,deal with the immediate impact of

the program. The focus will be on the results obtained with children who were enrolled in the preschool as three-year-olds and remained in it for two years. Other subjects were included in the project who were enrolled as four-year-olds and attended for only one year. However, the data on this group are incomplete and will not be referred to here.

In developing the program both formative and summative evaluations were used. Formative evaluation refers to studies of the immediate effects of specific program manipulations (e.g. teaching strategies) on the performance of the children. Summative evaluation refers to studies of the products of the program (e.g. IQ gains). During the first two years a series of formative evaluations were made of the effects of (a) small group teacher-guided activities on number concept and language acquisition, (b) manipulation of the physical environment on task-oriented behavior and (c) different types of teacher interventions on the induction and maintenance of theme-oriented dramatic play. Summative evaluations, or measures of the extent to which the goals of the program were achieved (the children changed in the desired direction) were obtained at the end of each year. The changes made in the program at the end of the first and second years were based on this work.

Summative evaluation data were used to assess socio-economic differences, the effects of the increased structure in the program and the over-all compensatory impact of the preschool on the performance of the low-income children. The principal comparison group for the low-income children was internal. It was made-up of children who were enrolled in the preschool at the same time and were the same age and sex, but from

families with relatively high-incomes. Socio-economic differences were measured by comparing the initial performance of the two income groups and the gains that they made over time. The effects of the changes in the program were assessed by comparing the gains made by the three different cohorts of children who attended school in different years, Cohort I (in years 1 and 2), Cohort 2 (in years 2 and 3) Cohort 3 (in years 3 and 4). The compensatory impact of the program was measured in terms of the extent to which any initial differences between the high- and the low-income groups remained constant or decreased over time.

Regarding the criteria for judging compensatory effects, the mean IQ of the high-income children was greater than that of the low-income children and IQ is usually considered to be a measure of learning ability. Therefore, given equal opportunities for learning in the preschool, the achievement gains of the high-income children would be expected to be greater than those of the low-income children (i.e. the differences between the income groups would increase). On the other hand the high-income children might have received so much stimulation at home that the effects of the program might be minimal. If this were the case then, if the preschool experience made up for a lack of stimulation in the homes of the low-income children, they would be expected to make greater gains (relative to their initial performance) than the high-income subjects and begin to catch-up to them. It was this line of reasoning that suggested that no increase in the differences between the income groups, as well as a reduction in the size of the differences,

was support for the conclusion that the program had had compensatory effects.

The kinds of performance assessed were consistent with the goals of the program. They included measures of social competence, problem solving, learning styles, and cognitive and intellectual abilities. Because no satisfactory instruments were available for measuring some of these abilities, new ones had to be developed as part of the project. One of these was a measure of social competence the development of which is described in detail elsewhere (Wright, 1978). In this an observational, time sampling approach was used to measure the frequency with which the children actively attempted to influence the behavior of a peer, were tactful and considerate in their approach, and successful in obtaining their social goals. Differences in the extent to which children displayed such qualitatively superior and effective peer interactions were found to be associated with a wide range of other indices of adaptive ability.

The measures of problem solving and cognitive and learning styles included the Kansas Reflection-Impulsivity Scale for Preschoolers, Circus "Make a Tree" (Creativity), Circus "Think it Through" (problem solving) and teacher ratings of self-direction, mastery motivation, self-management, curiosity, creativity and imagination. The measures of cognitive abilities included Circus "Say & Tell" (language), Circus "How Much and How Many" (number), the Preschool Inventory (1970 edition, a measure of educational achievement mainly in conceptual areas) and the Stanford Binet Intelligence Scale.

Each year the performance of the children on all of the measures was assessed in both the fall (approximately six weeks after the children were enrolled in the school) and the spring.

Finally it should be pointed out that although the tests were selected to measure the extent to which specific goals of the program were achieved the teachers did not "teach-to-the-tests". They knew what tests were used and the types of abilities they were designed to measure, but they had little or no knowledge about the actual test items. Also the teachers were given no information about the performance of individual children on the tests, although at the end of each year they were told about the overall performance of the subject groups. The teaching staff and the research staff worked independently so that the judgments and findings of the one group would not influence those of the other.

Findings

Socio-economic differences

The largest initial differences found between the low- and the high-income groups were in the cognitive and intellectual areas, including cognitive styles (impulsivity), problem solving and language ability. More than half of the low-income children, but less than six percent of the high-income children had, at the start, IQs below normal (in the 80s or less). There was, however, some overlap between the groups with some of the low-income children scoring higher than some of the high-income children.

The smallest initial differences between the income groups were

in social competence,(suggesting that the high-income children had had no more opportunity to learn about how to interact successfully with their peers than had the low-income subjects) and in the motivational and learning style areas. The low-income subjects appeared to be just as self-directed, curious, exploratory and eager to succeed as were the high-income children. Also, although they were not as imaginative, creative or self-controlled at the start, they responded readily to the program and "caught up" to the high-income subjects, during their first year, in all of these areas except creativity.

These findings supported the view that the basic assumption on which the program was based was sound, namely, that the problems of low-income children lie primarily in the cognitive areas. They also confirmed the expectation that the low-income children would have the motivational characteristics which would make them capable of responding successfully to an active-discovery, play-oriented program.

Compensatory effects

Because it was considered likely that the large initial differences in the cognitive abilities of the income groups were due, at least in part, to greater stimulation in the homes of the high- than the low-income subjects, the largest compensatory effects of the program were expected to occur in the cognitive areas. The results were consistent with these expectations.

Over two years in preschool, one quarter of the low-income children made IQ gains ranging from 20 to 28 IQ points and half of them made gains of 10 to 19 IQ points. However, there was no

significant change in the IQs of the other twenty-five percent of these children. Those who made the greatest gains in this group were, for the most part, those who started out with the lowest scores.

There was some reduction in the size of the differences between the mean IQs of the income groups over time, but it was not large. This was because the high-income subjects, who were not expected to increase their IQs very much, also made significant gains. The mean IQs of the low- and the high-income children tested were, initially, 87 and 110 and, at the end of their two years in preschool 103 and 119 respectively.

The typical pattern of results obtained on the other cognitive measures, including problem solving and language was as follows. During the first year both income groups made large and significant gains, but the size of the differences between them did not decrease and in some cases (e.g. number acquisition) tended to increase. However, during the summer holidays the low-income children improved their conceptual abilities more than did the high-income children so that when they returned to school for their second year the differences between the groups was reduced. Then,during the second year,the low-income children made greater gains than the high-income children, and, although they did not completely "catch up" the differences between them were greatly reduced.

It appeared that the high-income children were well-equipped to respond to the program when they entered the preschool and, by the end of the first year, had achieved a level of performance which was

fairly consistent with their genetic potential. Thus, although they continued to make performance gains, these were not as great as before. Although the low-income children made remarkable gains during their first year in preschool, they clearly did not realize their full potential. It appeared that they needed time to assimilate their new experiences. The greater summer holiday gains made by these children suggest that the program had succeeded in activating their representational abilities and improving their learning styles so that they could continue to grow through their own initiatives.

It was said above that the low-income children did not succeed in "catching up" to the high-income children. This was not, however, entirely the case. There were wide individual differences in the low-income children and some of them performed as well on everything as did most of the high-income children. Because of this the performance of the more intelligent half (highest IQs) and the less intelligent half (lowest IQs) of the low-income sample was compared, and it was found that the more intelligent group did "catch up" to the high-income group on all of the cognitive measures. As the more intelligent low-income subjects developed abilities which were more and more comparable to the high-income subjects the differences between them and their less intelligent low-income counterparts was greatly increased.

As was pointed out earlier, the income groups were not significantly different, when they entered preschool, in their ability to interact successfully with their peers. It appeared their previous

opportunities to learn such skills had been about equal. Therefore, no compensatory effects were expected. Both groups made significant gains in social competence, but the differences between them increased over time and these favoured the high-income group. Since social competence appears to depend on the ability to communicate and on social cognition, or the ability to understand the thoughts and feelings of others and to consider them in social problem-solving situations, the superior language skills and cognitive abilities of the high-income children likely account for these findings.

Program structuring effects

The comparisons of the performance of the cohorts who were in the most and the least structured programs indicated that the structuring had had some effects. The most informal program , offered in the first year, had a greater positive effect on the social development of the children, in both income groups, than did the more structured programs and this effect was somewhat greater in the low- than the high-income children. The programs offered in the first two years were also just as effective as those offered in the last two years in producing IQ gains and improving the children's motivation to learn, their curiosity, creativity, imagination and self-management skills. However, the more structured programs were more effective with the low-income children, though not with the high-income children, in improving cognitive styles (i.e. reducing impulsivity and distractability), inducing constructive task-oriented behavior, and increasing cognitive competence in conceptual areas than were the more informal programs.

These findings are consistent with those of other investigators and suggest that early education programs for the economically disadvantaged child require more structure of the sort included in the U.W.O. program than do programs for children from more affluent and secure homes.

Summary and Conclusions

Studies of 60 three-year-olds (35 from high- and 25 from low-income families) during one year in preschool, and 50 of these same children (26 from high- and 24 from low-income families) during two consecutive years in preschool, yielded findings which support the view that children from economically disadvantaged homes fail in school more often than their more advantaged counterparts because they do not receive enough cognitive stimulation during a critical phase in their development and because their home environments are not conducive to the development of effective cognitive and learning styles or problem-solving strategies. They also demonstrated that preschool education, which is begun with such children when they are three-year-olds, can have significant immediate compensatory effects, but indicated that such effects are greater when the children are offered a well-organized program, which focuses on the development of conceptual abilities and representational skills and is structured to meet each child's individual needs.

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APPENDIX

Technical and Other Reports on the Project

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